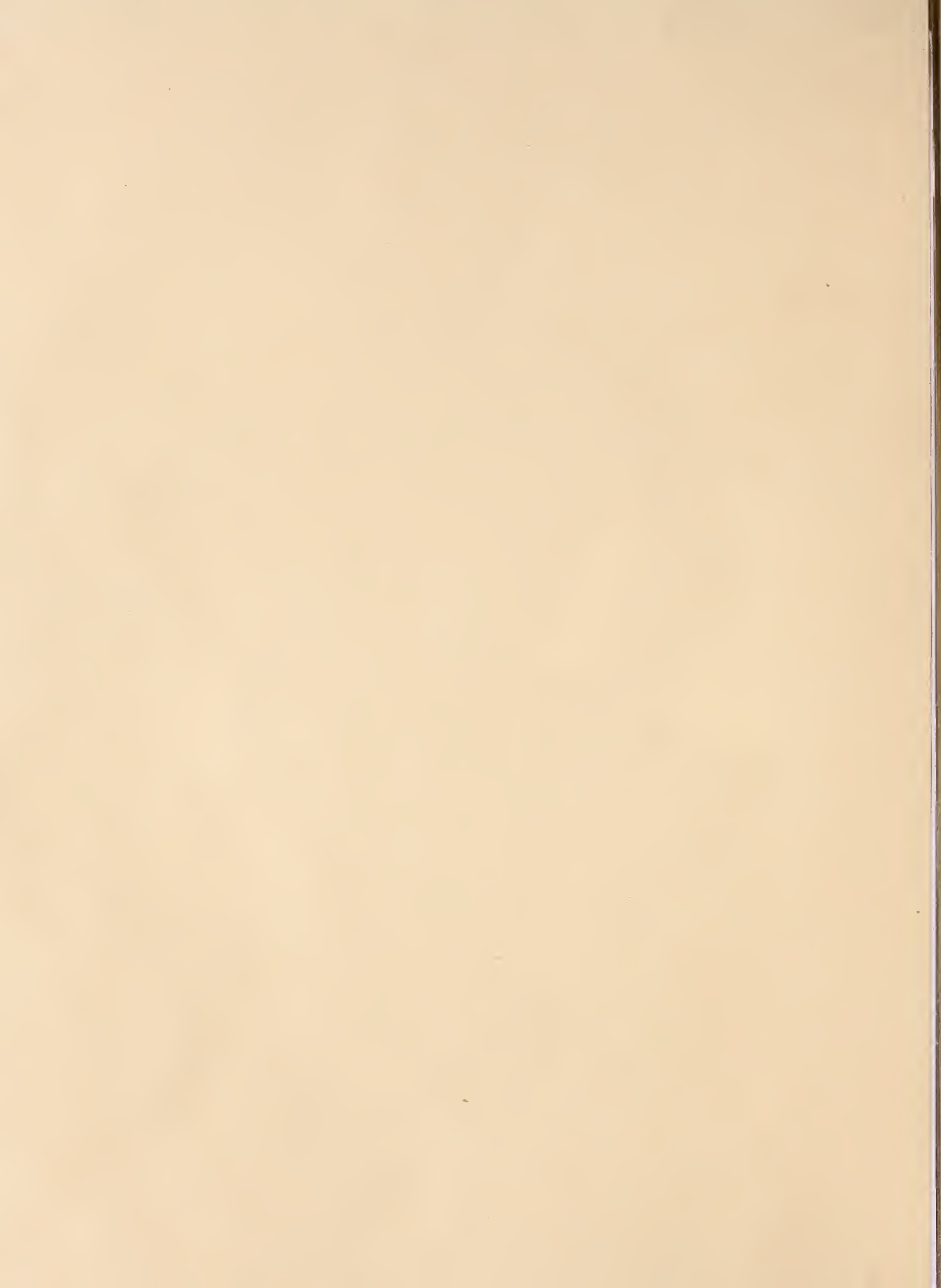


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# DAILY DIGEST

Prepared in the Press Service, Office of Information, U. S. Department of Agriculture to present items of interest to agriculture and to agricultural workers. Views and opinions in these items are not necessarily approved by the Department.

Vol. LXVII, No. 61

Section 1

December 28, 1937

## INTELLECTUAL FREEDOM

"Professor Edwin Grant Conklin, Princeton biologist and retiring president of the American Association for the Advancement of Science, sounded the keynote last night by calling on the scientists of the democratic countries to 'use their utmost influence to see that intellectual freedom does not perish from the earth,'" says William L. Laurence in an Indianapolis report to the New York Times. "This duty, he said, devolved particularly on American scientists, 'who are the inheritors of the tradition of liberty of thought, speech and press, and who believe that freedom and responsibility are essential to all progress.'..."

## CHEMISTRY IN INDUSTRY

Methods which promise to yield economical air-conditioned comfort to the average home have been developed through the demand, not of the home owner, but of industry, a divisional meeting of the American Chemical Society was told yesterday. Industry has taken action about the moisture content in the air to assure the uniform control of products and processes, R. B. Derr of the Aluminum Corporation of America's research laboratories declared at the annual symposium of the Society's Division of Industrial and Engineering Chemistry. (New York Times.) A Cleveland report by the Associated Press says: Commercial possibilities of some less familiar elements were discussed yesterday at the symposium of chemists. H. C. Meyer, president of the Foote Mineral Company, listed zirconium, lithium, beryllium and titanium as offering promise of extensive industrial application.

## RESALE-PRICE MAINTENANCE

There is reason to believe that the present levels under resale price-maintenance contracts are not as high as the proponents of the contracts hope eventually to make them, Robert E. Freer, a member of the Federal Trade Commission, told the American Marketing Association meeting yesterday. Mr. Freer pointed out that manufacturers had not rushed to take advantages authorizing resale price-maintenance contracts and that the only widespread use seemed to be in cosmetics and drugs, books and liquor fields. The contracts in these lines appear to total far more than all the other industries combined. (New York Times.)

Home Economics                      Pointing out that the fundamental goal of a democracy  
Research                              is the well-being of its people, Dr. Louise Stanley,  
   Chief of the Bureau of Home Economics, in her annual  
report to the Secretary of Agriculture, outlines the three-way contribu-  
tion of home economics research to this national aim. First, for agen-  
cies formulating public policies. To plan effectively they need facts  
on family income, family expenditure patterns, and present-day levels of  
of living such as are coming from the nation-wide Consumer Purchases  
Study, now being conducted by the bureau in cooperation with other Gov-  
ernment agencies. Second, to producers seeking to gear their programs  
to consumer needs and desires. These data give a comprehensive picture of  
how the American family divides its dollar and the regional differences  
in spending habits. Third, for the homemaker, chief purchaser of the  
family's food, clothes, household goods, and services. The bureau  
translates its scientific findings into layman's language. It issues  
diet plans to fit the family income, buying guides for clothing and  
household textiles, and directions for choosing and using materials and  
equipment so as to get good returns in family health and satisfaction.

Reciprocal                              Cordell Hull, Secretary of State, is arranging to  
Trade Pacts                            devote much of 1938 to the negotiation of trade agree-  
   ments. The new year, he believes, will prove the most  
important in this line since the first such agreement was signed with  
Cuba in 1934. Negotiations for six pacts designed to expand commerce  
will be in progress in 1938, including those with the United States'  
two biggest customers, Canada and the United Kingdom. In addition, no-  
tice of intention to negotiate has been given with regard to Ecuador and  
Czechoslovakia. The highlight of the 1938 effort will be the conver-  
sations with the United Kingdom. The State Department has published a  
long list of imports and exports from and to the United Kingdom. Trade  
agreements have been signed with sixteen countries--Cuba, Brazil, Bel-  
gium, Haiti, Sweden, Colombia, Canada, Honduras, the Netherlands and  
colonies, Switzerland, Nicaragua, Guatemala, France and its colonies, ex-  
cept Morocco; Finland, Costa Rica and El Salvador. (A.P.) A report  
in the New York Times says a forecast that the United States would ex-  
port more goods to foreign countries in 1937 than it would import from  
other nations was made recently by the Chamber of Commerce of the United  
States on the basis of a foreign trade review just compiled. While the  
first nine months of this year showed an excess of imports the review  
asserted that importation was slowed up in the third quarter by reduced  
industrial purchases of foreign raw materials and more nearly normal  
farm crops. Combined with increased general exports, the two factors  
named brought a change in the trade balance so that exports will be  
ahead, it was stated. A world-wide demand for United States manufactured  
products and raw materials was chiefly responsible for the heavy export  
gains. Larger shipments of iron and steel, copper, machinery, automo-  
biles, petroleum, cotton and grains, with higher prices, accounted for  
82 percent of the \$633,000,000 increase in exports.

**Sand & Gravel Research**      The National Sand and Gravel Association has announced the establishment of a research foundation at the University of Maryland devoted to the study of subjects pertaining to the sand and gravel industries. The association will remove its testing and research equipment to new quarters at College Park shortly and work will begin in January. Dean S. S. Steinberg, of the College of Engineering, will be a member of the advisory committee, which will be headed by Stanton Walker, director of engineering with the sand and gravel association.

**Science Forecast**      Watson Davis, Director of Science Service, gives five predictions for science in 1938. They are: (1) chemicals from within and without animals and plants will be shown to affect growth, development and disease to such an extent that they can be used for creation of new varieties of living organisms and treatment of ills now unconquered; (2) the elements and their subatomic particle building blocks will be further explored through use of high voltage machines, cosmic and other radiation, and greater production of artificial radioactive elements will aid cancer treatment; (3) studies of the processes of senescence will lead toward discoveries that promise to postpone the onset and lessen the debilities of old age, while studies of hormone factors in personality may point to important social consequences; (4) protein molecular viruses will illumine the cause of more diseases, chemicals will offer hope of more positive treatments and disturbed world conditions may let loose some major plague; (5) giant flying boats and the helium-buoyed sister airship to the Hindenburg will go into transatlantic service, while lesser transportation will benefit from improved methods of making farm-to-market roads."

**Loans for Cotton**      "Cotton farmers in sixteen Southern States, taking advantage of government facilities, already have borrowed \$180,756,097 on their bumper 1937 crop, the Commodity Credit Corporation announced recently," says Dewey L. Fleming in the Baltimore Sun. "Loans, averaging 8.37 cents a pound, have been made on 4,112,807 bales, almost one-fourth of the year's record production of 18,746,000 bales. The advances were made by local banks and guaranteed by the Commodity Credit Corporation, an offshoot of the Reconstruction Finance Corporation...Loans in Texas far exceeded those in other states, according to the corporation report..."

**Potato Sorting Machine**      Scientific American (January) contains a short item on a machine which sorts potatoes. It was developed by an Ohio farmer boy with the aid of a large farm machinery maker and the engineer of a rubber company. The machine has rubber fingers which grade the potatoes without injury and clean them as well. "Scores of these new potato grading machines have been placed in service with high satisfactory results," it says. "Operation is quite simple. Cleaning and grading is entirely automatic. The only manual labor required during the grading process is the removal by hand of those potatoes injured during digging and storage."

Soybeans in Mississippi Delta Region      Soybeans will next year be made one of the major farm crops of the Mississippi Delta farmers, according to county agents in this region, says a report in the New Orleans Times Picayune (December 19). Soon after the first of the year meetings will be held in all the principal counties to arouse interest in this important crop. Already the crop has begun to assume major importance in agriculture in the Mississippi Valley, according to manufacturers and county agents. Mill men and agricultural exports hope to double the output in 1938, as there is a good demand for soybeans at oil mills which convert the beans into various commercial products. The Delta experiment station advises that the larger plantations plant from 200 to 300 acres of soybeans annually for grain and hay crops. Experiments have been conducted at the Delta station to develop a rich yellow, high-yielding, shatterproof variety. The well-known Mammoth Yellow is a high yielder but falls to the ground if it is not cut when it is ready for harvesting. York (forage expert at the station) has produced several crosses that are considerably nearer to his goal than the Mammoth Yellow--Mamloxi, Delstra and Mamredo.

Negro Farms and Health      "Negro health is a human problem, not racial," says the Missouri Call (December 17). "That truth is brought out beyond question of a doubt by the U.S. Department of Agriculture. To the Negro editors assembled in conference, officials of the department related their efforts to help the farm workers of the South, who, in a state like Mississippi, are two-thirds Negro. Crop improvement is supposed to be the chief concern of the Department of Agriculture. It is, but as a by-product of the diversified farming which they insist upon, they found an amazing improvement in health... The same persons who were sickly on hog and hominy, grew healthy on a diversified diet. The amount of canned fruits, vegetables and meats in the cabin was the measure of health of the family... State schools, county extension agents, federal bureaus and individuals of understanding are nucleus enough to get a health drive going among Negroes... The President's proposed housing, health teachings, year-after-year health examinations and an intelligent self-interest can do even more than a change of diet has accomplished in Mississippi."

Windjammers      R. C. McFadden, in Country Gentleman (January) is  
Fight Frost      author of an item on windjammers (wind machines) which protect citrus crops from frost. "...It is generally conceded that it takes more than air movement to protect oranges from freezing. The air temperature must be raised. The windjammers actually accomplish this because of the so-called temperature inversion condition in the citrus belt during cold snaps. Oftentimes with the air temperature at ground level 5 degrees below freezing, the air temperature from 40 to 50 feet above the ground will be at least 10 degrees warmer. The giant propellor, which is directed slightly downward, forces the warmer upper air into the trees... In 1937 there were 75 of these machines, protecting approximately 2,000 acres of citrus orchards.... The cost of power amounts to about \$30<sup>an</sup>/acre a year..."

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Section 1

December 29, 1937

## EROSION OF LAND

Land planted to corn and cotton tends to erode more than one hundred times as fast as land planted to grass and other cover crops, according to experiments now being carried on by the Soil Conservation Service. These experiments as well as other results of erosion studies were discussed yesterday by Dr. Gordon Rittenhouse of the Soil Conservation Service before the Geological Society of America. Because of "human interference with natural processes," geologists must re-examine critically previously determined rates of continental denudation, based mainly on records of the river loads of silt, before applying them to the past, Dr. Rittenhouse told the scientists. (New York Times.)

## MICRO-CHEMICAL TECHNIQUE

Advances in the perfection of micro-chemical methods have made possible the saving of ninety-nine per cent of the material and fifty per cent of the students' time, Dr. David Harker, instructor in chemistry at the Johns Hopkins University, said last night in an address to the American Chemical Society. Successful application of the micro-chemical technique in various institutions was reported at the seventh national organic chemistry symposium of the A.C.S. Specialists in certain fields of chemistry have been whittling down the amounts of material used for the last thirty years, Dr. Harker added. The experimentation at the Johns Hopkins University for the last six years has been directed toward simplification in the technique. (Baltimore Sun.)

## GOVERNMENTAL FARM PROGRAMS

H. R. Tolley, Agricultural Adjustment Administration, last night said administration, as well as enactment, of governmental farm programs must be "carried out in a manner as democratic as possible." Tolley's remarks, made at the twenty-eighth annual meeting of the American Farm Economics Association, were regarded as further illustrative of the Administration attitude expressed recently when Secretary of Agriculture Wallace told the Senate its farm bill provided too rigid control formulas. (Washington Post.)

## BRITISH WHEAT OPTION

As part of its now swiftly developing plans to safeguard Great Britain's food supplies in the event of war, the British Government has taken an option on the entire Canadian wheat crop; the Daily Herald said last night, says a London cable to the New York Times. According to the Herald, the option was negotiated by the Board of Trade and Sir Thomas Inskip, Minister for Coordination of Defense with the Canadian Wheat Board. "If the option ever has to be taken up," it said, "it will cost Britain about 100,000,000 pounds, plus 5,000,000 pounds, the price of the option."

Forest Service      Increased federal regulation of forest lands of  
Annual Report      the nation was recommended recently by F. A. Silcox, <sup>Chief of the For</sup>  
                         total est Service, in his annual report. Forest lands of the  
United States/615,000,000 acres, or almost one-third of the continental  
area, of which about 70 percent is privately owned and slightly less than  
30 percent is publicly owned. Mr. Silcox said that public ownership of  
forest lands was still essential to a sound national program of forest  
and human conservation, as well as public cooperation with private own-  
ers, safeguards to insure more adequate participation by farm and in-  
dustrial owners. "But current conditions raise the question whether pub-  
lic ownership and public cooperation are adequate to meet the existing  
situation," he continued. "With the many broad interests at stake and  
with a crop that matures as slowly as timber does, a margin of sovereign-  
ty over private forest lands is also necessary. Thus sovereignty can  
successfully be exercised only by government in which it is lodged.  
"...Public regulation of private forest lands has always been neces-  
sary. It protects vital public interests. It also protects private  
owners who recognize social obligations inherent in forest-land manage-  
ment from those who might otherwise continue ruthless exploitation." (N.Y. Times.

Farmsteads in      The leading article in the Social Service Review  
Nebraska      (December) is "Three Farmstead Communities in Central  
                         Nebraska," by Oramel K. Krueger of the Chicago Relief  
Administration. He says in the last paragraph: "Certainly these projects  
offer no solution of the economic problems of Nebraska farmers. Whether  
they will solve the individual problems of the few families placed on  
the few projects is still to be determined."

Foot-and-Mouth      Country Life (London, December 18) contains a  
Disease      special survey made by the magazine on food-and-mouth  
                         disease. The articles discuss the points of view of  
the scientist, the Ministry of Agriculture and the farmer. The policy  
of slaughter is similar to that of the Department of Agriculture here.

Pioneers in      Dr. Melville T. Cook, plant pathologist of the  
Virus Studies      experiment station in Rio Piedras, Puerto Rico, is  
                         author of "Pioneers in the study of Virus Diseases of  
Plants" in the January Scientific Monthly. Among the pioneers he men-  
tions four Europeans, Mayer, Iwanowski, Beijerinck and Quanjier. The  
four outstanding Americans, he says, are E. F. Smith (deceased, former-  
ly of the Department), A. F. Woods (of the Department), H. A. Allard  
(of the Department) and James Johnson (University of Wisconsin and the  
Department). The author also says that "W. A. Orton (deceased, former-  
ly of the Department) was a pioneer in the study of the virus diseases  
of potatoes". He also mentions the work of George P. Clinton (deceased,  
formerly of the Department) and mentions the pioneer studies on the  
transmission of the viruses by means of insects, made by Japanese and  
American workers.

## Leukemia Studies

The New York Times, reporting the opening sessions of the A.A.A.S., says that the artificial induction in animals of the fatal cancer-like blood disease known as leukemia, as well as new methods for its treatment in animals, were reported by Dr. M. W. Emmel of the University of Florida. If Dr. Emmel's results are later corroborated, they may open an entirely new avenue of approach to the treatment of this dread disease, for which no effective means of treatment exist at present and may also provide medicine with new tools for fighting cancer. The Agricultural News Service of the University of Florida (December 30) says that for years leukemia and fowl paralysis baffled the scientific world as to its cause, being attributed to a filterable virus for lack of more definite information. Dr. Emmel has induced leukemia in the chicken, monkey, dog, rabbit, goat and mouse by repeated injections of living, dessicated or autolyzed homologous tissues, he said. He has induced it also by repeated intravenous injections of benzene, phenol and xylol. The antiserum which he has developed will cure a high percentage of all types of leukemia in chickens, he says, and gives good results against experimental lymphatic leukemia in the dog, monkey and goat.

## 1937 Science Progress

Science Service, reviewing 1937 progress in biological sciences, medical sciences, engineering and technology, chemistry and physics, psychology and psychiatry and earth sciences, lists, among many, the following few: heartbeats of insects were recorded with a new mechanism; flowers were induced to form fruit with pollination, through spraying with growth-promoting substances; major outbreaks of grasshoppers and Mormon crickets occurred in the West and autumn studies of egg deposits indicated probability of similar outbreaks next year; a so-called elixir of sulfanilamide caused over 80 deaths by poisoning from diethylene glycol used as a solvent in the remedy; the white-fringed beetle, a new insect menace, was found in three southern states and brought under control; the migratory bird treaty with Mexico was ratified; a new organization, the Wildlife Society, was formed to promote the protection and restoration of native species; a method of sterilizing wool fabrics without injury was perfected; the earth's age was checked by studies of radioactive potassium and the figures agreed closely with those found from studies of uranium; record-breaking floods visited the Mississippi, Ohio and Connecticut valleys during 1937, causing great property damage and accelerating flood-control work.

## Redwood Motor Fuel

Redwood charcoal as a basis for motor fuel is the latest by-product possibility developed by the California Redwood Industry in its aggressive market expansion program which has already resulted in several new uses for redwood. A lumber company is conducting experiments in which carbon monoxide gas from redwood charcoal is used to operate trucks. The process used is similar to that developed in Europe with alterations demanded by the peculiar qualities of redwood. One pound of charcoal will propel a truck one mile. A top speed of 50 miles an hour has been accomplished. (Business Week, December 25.)

Orange                      The orange crop for use this winter is about 8  
 Crop Larger              percent larger than last year and about 25 percent above  
                                  average (1931-35) according to the Bureau of Agricultural  
 Economics. Total production of all varieties of oranges, except Califor-  
 Valencias, is placed at 41 1/2 million boxes. The California Valencia  
 crop, which will be the chief source of orange supplies next summer, is  
 forecast at about 25 1/2 million boxes; 50 percent more than the frost-  
 damaged crop of last year and 25 percent above average (1931-35).

Scientific                      "Two scientific developments, both of which were  
 Developments              given their first wide publicity in Country Gentleman,  
                                  are proving to be invaluable weapons in the battle against  
 drought and dust on the Southern Great Plains," says an editorial in the  
 Country Gentlemen (January). "In a feature article which appeared in  
 our issue of November 1931, the advent of combine milo was announced.  
 Two varieties of this had just been released by the experiment stations  
 at Hays, Kansas, and Woodward, Oklahoma...During the ensuing six years  
 combine milo swept the country...The father of combine milo is J. B.  
 Sieglinger, a plant breeder at Woodward. Supt. Aicher and his staff at  
 the Hays station worked closely with Sieglinger in his experiments. If  
 these two stations had done nothing else, the creation of a practical  
 feed and cover crop for the high plains would justify their existence.  
 Meantime, two other scientists, O. R. Mathews and A. L. Hallsted, again  
 of Woodward and Hays, were collaborating on another piece of work which  
 apparently is destined to have far-reaching results...Analyzing and  
 charting data (on rainfall, subsoil moisture and crop yields on dry  
 lands) Mathews and Hallsted discovered that the amount of subsoil mois-  
 ture at fall seeding is the all-important factor in winter wheat pro-  
 duction...During the crop year of 1936-37 the reliability of this fore-  
 cast method was proved on hundreds of farms. Already some of the grain  
 scouts for the big elevator and milling companies are carrying soil  
 augers in their cars...Combine milo and the new forecast system, coupled  
 with moisture-saving tillage methods developed by the Soil Conservation  
 Service, give the dust bowl a chance to beat back. They give the  
 land of big wheat a chance to move forward into a more dependable type  
 of agriculture..."

Duck Disease                      A "mystery malady" which recently caused the death of  
 in New York              many black and mallard ducks on Irondequoit Bay near  
                                  Rochester has been diagnosed as a combination of asper-  
 gillosis and lead poisoning, says an Albany report by the Associated  
 Press. The State Conservation Department <sup>by examination</sup> of the dead birds established  
 the diagnosis.

Engineering                      An item in the New York Times says that in some arid  
 Aids Pumping              regions, notably California, the water level has dropped  
                                  so low that the cost of pumping has become burdensome to  
 farmers. To check the downward trend of the water level, the Bureau of  
 Agricultural Engineering has devised improvements in the practice of  
 spreading flood water over porous soils, through which it sinks into  
 natural underground reservoirs, renewing supplies for irrigators.

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Section 1

December 30, 1937

"SCIENCE AND SOCIETY"                Science promises the American people a continually finer sort of living by the utilizing of power to "make things and move things," Dr. A. A. Potter of Purdue University told the American Association for the Advancement of Science yesterday. Addressing the association's symposium on "Science and Society," Dr. Potter said that scientific discoveries and technological applications of power resources "should contribute more and more to a fuller and richer life." (Associated Press.)

SCIENCE IN EDUCATION            Science plays such an important part in the daily lives of human beings that an "S" should be added to the "Three R's" of elementary education, Dr. Alfred N. Goldsmith of New York City told science teachers at Rochester yesterday. Speaking at the convention of the New York State Science Teachers' Association, Dr. Goldsmith, technical consultant of the Radio Corporation of America, disclosed the progress made toward television and stressed the importance of the relatively new art of electronics. (New York Times.)

BUSINESS RECESSION            An analysis of the effects of the current business recession in various parts of the United States was presented yesterday by L. D. H. Weld, director of research for McCann-Erickson, Inc., New York, before the American Marketing Association in annual session, says an Atlantic City report to the New York Times. "The greatest decreases took place in the Chicago, New England, Philadelphia and Memphis regions," he declared. "New York City also showed a considerable decline. On the whole, the northeastern part of the country has suffered the most."

REHABILITATION OF NATION            "The year 1938 will witness a turn in the recession and mark the point of departure toward a new prosperity, provided there is cooperation between industry and government in the task of national rehabilitation, the American Statistical Association, meeting in conjunction with the Allied Social Science Associations, was advised last night in addresses by leading experts on business conditions," says Joseph Shaplen in an Atlantic City report to the New York Times. Colonel Leonard P. Ayres, vice president of the Cleveland Trust Company, declared the bottom of the present slump would be reached in the first half of the new year...."

Acreage  
for Food

Dr. B. W. Kunkel, professor of zoology, Lafayette College, writes on "The Fat of the Land" in Scientific Monthly (January). He says in part: "Combining the areas required for the different items of the diet, we find that a total of a little less than 2.4 acres is necessary for the support of one man for a year if the highest yields known in the United States are obtained. Although the idea may be advanced that this does not allow sufficient margin of safety and that the figure is therefore misleading, it may be replied that the large area required for dairy products--2.09 acres--is obtained on the estimate that it requires 12 pounds of fodder to produce one pound of milk. This is simply an average and does not represent the maximum yields of selected herds. As a matter of fact the best milk and fat producers as a result of selection can produce about double the quantity of milk and fat so that the dairy products would require only half the area allowed in the above calculation and the entire acreage would then come to one and a third acres. So, too, the best swine gain one pound for every three pounds of food eaten, and as the dressed pork with the lard is approximately 60 percent of the live weight, it would take only five pounds of fodder to produce one pound of human food. The social and economic consequences of this shrinkage of farm land are extremely far reaching. Part of the present plight of the farmer whose skill is insufficient to achieve the best results and whose products can not be economically distributed is tied up with the increasing efficiency of farms and the increasing capacity of man to produce food from the ground."

Wages and  
Prices

"A general reduction in prices to expand demand and a similar reduction in wages of skilled workers as measures to stimulate recovery were advocated by O.M.W. Sprague, Harvard economist and president of the American Economic Association, in an address recently", reports Joseph Shaplen, in an Atlantic City report to the New York Times. "Professor Sprague, former adviser to the Treasury Department and the Bank of England, spoke at a joint session of the American Economic Association and the American Statistical Association, meeting in conjunction with a group of learned societies forming the Allied Social Science Associations. Holding mistaken policies of business, labor and government responsible for the economic recession and the country's failure to match other nations in the extent of recovery attained, Professor Sprague stressed the determining role of the capital goods industries in economic rehabilitation and declared that the policies for the last four years had obstructed the recovery of these industries. A general reduction in prices to expand demand in these industries, coupled with a corresponding curtailment of wages, he declared, would have a beneficial effect on construction and expansion of utility and railroad equipment and serve as a powerful stimulus to nationwide construction of housing..."

**Vital Force in Plant Roots** "Experiments which reveal that the force within the roots of living plants, hitherto believed to be very small, is actually of a gigantic nature, capable of overcoming with ease counterpressures of 125 pounds to the square inch, the equivalent of a pressure of eight atmospheres, was reported to the American Association for the Advancement of Science by Dr. Philip R. White of the Rockefeller Institute for Medical Research," reports William L. Laurence in the New York Times. "The discovery, it was stated, 'revolutionizes botanical theory, overturning one of the most widely accepted hypotheses in the whole field of plant science.' For the first time science has a satisfactory explanation as to how the sap can reach the top of tall trees, reaching as high as 350 feet. The root force was discovered in a series of experiments...made possible by the development of a new technique in the Rockefeller Institute's Princeton station. The technique enables roots to be kept alive indefinitely after being detached from the parent plant, somewhat after the manner of the tissue culture method for keeping alive the 'immortal' embryo chicken heart at the Rockefeller Laboratories in New York. Dr. White used the 'orphan' roots of tomato plants in his experiments. When the apparatus broke, the tomato root had displayed a force strong enough to send sap up to a height of 200 feet, about 25 times higher than the average tomato plant..."

**Preserve Insect in Shell** Precious amber, prized by mankind as a gem and by the scientist for the remains of long-extinct insects preserved in it, had a modern rival in a new technique for preserving insects in transparent plastic materials, says a Science Service report. Details of a process for putting insects inside a preserving shell of synthetic resin are independently reported by Dr. J. H. Hibben of the Geophysical Laboratory, Carnegie Institution of Washington, and Dr. Charles E. Sando of the U. S. Department of Agriculture. Using compounds such as methyl methacrylate, the two scientists have succeeded in protecting the insects from the ravages of daily moisture changes which damaged unmounted specimens. Drs. Hibben and Sando have succeeded in mounting insects, dry plant materials and a host of inorganic substances in plastic shells. Using other methods, G. R. Fessenden, of the Department of Agriculture, has worked out means for "fixing" the colors and shapes of growing plants, so that they too may be mounted in plastic shells. Leaves and flowers, just as they come from the field, can be mounted to protect them from damage and preserved in a "fresh" state indefinitely.

**Rural Zoning Session** A zoning conference was held in Chicago this month under the auspices of the National Resources Committee. An entire session of the conference was devoted to the discussion of rural zoning and better land uses, including problems of soil conservation districts, public lands, grazing, roadsides, taxation and forestry. M. L. Wilson, Under Secretary of Agriculture, presided at this session. (Science, December 24.)

New Dakota                      A new wheat developed at the North Dakota Experi-  
Spring Wheat                    ment Station by L. R. Waldron has outyielded all other  
                                  spring wheats for the years 1934, 1935, 1936 and 1937,  
the station has announced. This wheat, which has not yet been named  
but which goes by the number 2592, is resistant to leaf and stem rust  
and is fairly drought resistant. It has good milling and baking qual-  
ities.. "The wheat is the result of crosses made by using Hope, Ceres  
and Florence..." says the announcement. "In 60 trials in the last three  
years it has outyielded its nearest competitor by 2 1/2 bushels. In  
1936, the dry year, it checked against Ceres which is very drought re-  
sistant. In the rust years of 1935 and 1937 it was check against Thatch-  
er which is rust resistant...This new wheat is now being inscresed and  
it is expected that distribution will be made to farmers early in 1939."  
(Northwestern Miller, December 22.)

Asphalt                              "Coordination of reserach into the properties  
Research                            and uses of asphalt as a road material, now being con-  
                                  ducted by many scattered agencies, was urged by Thomas  
MacDonald (Chief of the Bureau of Public Roads) at the National Asphalt  
Conference held recently in Memphis," says Engineering News-Record  
(December 23). "Mr. MacDonald also expressed the belief that the oil  
companies should provide funds necessary to make this coordination pos-  
sible and to permit the Highway Research Board to lay down a program  
of additional study to fill in the gaps that now exist in the knowledge  
of the properties of asphalts. The need for such a planned research  
was very apparent at the conference...All studies of the use of asphalts  
are greatly complicated by the unnecessarily wide range in quailties of  
supposedly similar products. Here then is a field of research by both  
suers and producers that has vast possibilities in improving roadbuilding..."

Frozen Foods                      Widespread expansion in frozen food production  
Expansion                            and distribution is planned for 1938 with many small  
                                  companies entering the industry for localized operations,  
reports in food trade circles in New York City indicate, says a report  
in the New York Journal of Commerce. It is estimated in industry cir-  
cles that retail sales totals currently are running at the rate of  
\$13,000,000 a year, with further gains looked for during the coming  
year. Recently surveys indicate that some 5,000 retail food dealers,  
mostly in New England and the Middle Atlantic States, are now distribut-  
ing frozen food products. Weekly sales by these retail units average  
\$50 and upwards. Trade estimates on probable sales volume on frosted  
foods during 1938 vary. Taking into account both retail and institu-  
tional ssles totals, however, it is expected that retail values of such  
products marketed during the comint year will run well in excess of \$20.-  
000,000 and that succeeding years will witness a steady acceleration in  
both production and sales of frozen foods.

# DAILY DIGEST

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Section 1

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## SCIENCE AND SOCIETY

The social sciences, now in the early stages of development, give promise of building a sound base of accumulative knowledge which will make possible their application on a large scale so that one day they will be able to define the most fruitful conditions for the physical, mental and moral development of individuals, Frederick Osborn, New York economist, told the American Association for the Advancement of Science yesterday. Mr. Osborn, speaking in the association's symposium on "Science and Society," pointed out that the first direct application of science to man had enormously diminished human suffering and waste of human resources and that science was now beginning to work on the problem of changing human qualities and improving the environment as it affects development. (New York Times.) An Associated Press report says Dr. Wesley C. Mitchell, Professor of Economics at Columbia University, was elected president of the association for the 1939 term.

## DUCK TRAPPER CAMPAIGN

Open war was declared yesterday on duck trappers in the marshy Chesapeake Bay country, whose corn-baited wire prisons are illegal under federal and state laws, says a Crisfield, Maryland, report to the Washington Post. An amphibian plane and the cutter Calypso were ordered from the Coast Guard station at Cape May, N. J., by headquarters in Baltimore to press the drive in the air and on the sea. The campaign was expected to be in full force today.

## PUERTO RICO SUGAR CONTROL

A San Juan cable to the New York Times says that Puerto Rico's attempt to regulate contractual relations between the sugar centrals possessing cane and the farmers growing sugar cane is constitutional, according to a decision by the San Juan District Court denying an injunction to the Plata Sugar Company to restrain the enforcement of Law No. 112, passed at the last session of the Legislature effective for the coming harvest. The law empowered and directed the Commissioner of Agriculture to set up machinery to assure that contracts between the centrals and the farmers assured the latter 65 per cent of the sugar produced from their cane.

## ITALO-JAPANESE AGREEMENT

A Rome wireless to the New York Times says the tripartite anti-Communist pact became operative in the economic field for the first time yesterday so far as Italy and Japan are concerned when Foreign Minister Galeazzo Ciano and the Japanese Ambassador, Nasaaki Hotta, signed an agreement additional to the treaty of commerce and navigation existing between the two countries. It is understood the new agreement lays down new quotas for the exchange of goods between Italy and Japan, but its chief importance lies in the fact that it extends the provisions of the old treaty also to the African empire.

Crop Testing  
on Wheat

"Actual results in the work of western Canada's 'crop testing plan', under the direction and supervision of Maj. H.G.L. Strange, is indicated in the trueness of variety established for supplies of Thatcher wheat purchased in Minnesota in 1935," says Northwestern Miller (December 22). "The survey just issued covering the work conducted on these stocks reveals that at the time the purchases were made, each field had been inspected by officials of the Minnesota Crop Improvement Association and each grower was required to send a 5-pound sample to the association that would represent the supplies he intended to offer for sale. Growers were required, further, to furnish a written statement to the effect that the seed sealed in the sack and sold by them was as pure as the field that was inspected. In spite of this careful selection, the report points out that growing tests made in Canada (from the stocks obtained in Minnesota) contained an average of 50 impurities per count of 10,000, with a low of 25 and a high of 100. Thirty-six members of the Canadian Seed Growers Association were supplied with 1,997 bushels of this Minnesota material with a request that careful roguing be done. This first effort at improvement in Canada resulted in 27,436 bushels being produced with an average impurity of only 19 per count, with a low of 5 and a high of 42. The following year 1,519 of this stock was given to 18 selected seed growers, who produced over 20,000 bushels, with an average impurity of only 5.2 per count, with a low of .6 and a high of 13.3. This 20,000 is the stock being offered by the 'crop testing plan' for sale this year..."

Brucellosis  
in the U.S.

Miss Alice C. Evans, senior bacteriologist of the U.S. Public Health Service, declared in a recent report that proper pasteurization or boiling of all milk would prevent brucellosis (undulant fever, or Malta fever) in all persons except those whose occupation brings them into direct contact with infected animals. To protect the latter as well as the milk drinking public, the U.S. Department of Agriculture is carrying on an extensive campaign to eradicate the disease from cattle. There is as yet no similar campaign to control the disease in goats and hogs. Miss Evans pointed out that cattle may become infected from contact with infected hogs. (Science Service, December 28.)

New Garden  
Periodical

"The first number of Gardening made its appearance on October 15," says Nature (London, December 11). "It ministers well to the increasing popularity of the small garden, and scientific processes are portrayed in simple language. Mention may be made of 'Secrets of Dutch Bulb Raising' by Kurt Lubinski and 'Wild Trees in the Garden' by Richard St. Barbe Baker. There are in addition more general articles on garden design, plant pests and beneficial insects, the storage of vegetables and fruit, manuring, and many other practical problems. Gardening is a fortnightly journal..."

Quick Frozen                Nels H. Rosberg, California Consumers Corporation,  
Orange Juice                writing in Refrigerating Engineering (January) on quick  
                              frozen orange juice," says in part: "There are different  
ways of preparing the Valencia orange juice for canning, but none of  
these is more satisfactory than the vacuum cold packed quick freezing  
process, because in this process the flavor, aroma and true freshness of  
the fruit are preserved as long as a low temperature is carried on the  
containers it is packed in, providing that during the entire process  
the juice has been kept, by refrigeration, under constant low tempera-  
ture in order to minimize the oxidation and contamination from molds,  
fungi, yeast spores and bacteria. The vacuum cold packed quick frozen  
orange juice will retain all of its vitamins...In the flow sheet of the  
vacuum cold packed quick frozen citrus juice, refrigeration has been  
applied to all phases of the process..."

B.A.E. Chief's                Economic and social problems which "press for solu-  
Annual Report                tion" in agriculture are outlined by A. G. Black, Chief  
                              of the Bureau of Agricultural Economics in his annual  
report to the Secretary of Agriculture. Doctor Black reviewed the gains  
of the past five years--the rise in farm income, the reduction of far-  
mers' debts, the rise in farm real estate values. Costs of farm produc-  
tion increased less than the gains in farm income during the period,  
but "costs are rising more rapidly now," he said. "Farm taxes are ris-  
ing; farm machinery and repair costs are higher; farm building costs are  
up. This year's production will cost farmers about \$500,000,000 more  
than in 1936." Discussing economic and social problems, Doctor Black  
said "the menace of recurring surpluses and of consequent economic loss-  
es has not been removed." He cited in point the situation as to cotton,  
resulting in Government action to stem the tide of shrinking cotton  
prices. And this year's gain in the income of wheat growers, he said,  
was "largely the fortuitous result of relatively small harvests outside  
the United States. "It must be obvious," he declared, "that the econom-  
ic unbalance of agriculture cannot be righted by spasmodic action alone.  
A permanent program must be worked out in the national interest to off-  
set by means of crop insurance, over-normal granary, or other systems  
the vagaries of nature in alternately making and destroying crops. A  
few seasons of excessive production or a few seasons of heavy crop loss-  
es might well mean the loss of much of the economic gain which has been  
won by farmers in the past five years."

1937 Farm                    - The condition of the farmer's business, as reflected  
Credit Loans                by financing of the Farm Credit Administration, continued  
                              on an "even keel" during 1937, said F. F. Hill, Deputy  
Governor of the administration in summing up the year's work. Total  
loans through institutions operating under the Farm Credit Administration  
aggregated \$653,000,000 in 1937 compared to \$677,000,000 in 1936.  
(FCA, No. 9-15.)

Forest By-Products      The California Cultivator contains an item of the work of the Forest Products Laboratory in finding new and more economical uses for the products of the forests. "One experiment in the use of waste sawdust has resulted in the production of a wood plastic," says E. C. Sherrard, in charge of chemical research at the laboratory. The sawdust of only a few species of wood, such as maple, hickory, red oak, aspen, red gum and southern pine, has been used so far in the experiments. So far only black or dark-colored articles have been made. The plastic produced at the laboratory holds promise of furnishing a durable, low-cost plastic sheet than can be molded or machined for many purposes. The bathroom floor in an experimental all-wood<sup>pre</sup> fabricated house recently built by the laboratory is made of this new tile material. New uses for this plastic may develop. The laboratory, a unit of the Forest Service, will not, of course, manufacture the plastic, but they have patented the process and dedicated it to the free use of the people of the United States.

United States Water Supply      One-third of all the land in the United States is ill watered, says Science News Letter (January 1). John C. Page, U.S. Commissioner of Reclamation, pointed this out in an address. From the hundredth meridian westward to the crest of the sea-facing mountains on the Pacific slope, average rainfall cannot support the same kind of farming that is familiar in the moister East. Hence, following the lead of the early Spanish missionaries and the earlier Indians, present-day Americans in the region practice irrigation. The lands now under irrigation, and to be opened to irrigation in the future, do not offset in area more than a tenth of the acreage devastated and still menaced by erosion, declared Mr. Page. Even now, many farmers dispossessed of their holdings by water and wind erosion, are being accommodated on irrigated land in the West.

Vanishing Wildlife      The leading article in Scientific American (January) is by the chief of the Biological Survey, Ira N. Gabrielson--"What Can We Do About Our Rare and Vanishing Species?" An editorial note says: "Efforts that have been made to prevent wild ducks from following the heath hen and the passenger pigeon have already been so successful as to indicate the results that may be expected in other cases when conservationists and nature work toward a common goal. Faced with the fact that man and adverse breeding conditions were severely depleting the ranks of wild ducks, a concerted drive was made to find and apply remedies. Today, with nature's help, ducks are present on their nesting and feeding grounds in constantly increasing numbers."

Aloe Vera in Medicine      For several months physicians have asked the Missouri Botanical (Shaw's) Garden for fresh leaves from its tropical collection of aloe vera, a succulent desert plant. Officials of the garden said the large leaves were being used in the treatment of severe X-ray and radium burns. (A.P.)



